INCINERATOR WORK GROUP

SUBTEAM 4: METALS-, GLASS-, AND RUBBER-RELATED INCINERATION

SUBCATEGORY 1 (of 4): **DRUM RECLAIMER UNITS**

This type of incinerator is used to reclaim or recycle steel containers, most often 55 gallon drums. The drum coating and any container residues are burned off in a batch or semi-continuous fossil fuel-fired (most often natural gas) incinerator prior to repair, recoating, and reuse of the container. Due to the easy identification and substantial number of these units in the ICCR database, their unique purpose, and the potential for emissions of hazardous air pollutants, they were subcategorized for further study.

CAAA Section: 129
Number of Facilities in ICCR database: 37
Number of Units in ICCR database: 43
Employees per Facility: 6 - 500
Fuel: natural gas (14)
Heat Input: 1.2 MMBtu/hr - 15.6 MMBtu/hr
Air Pollution Control Device: direct flame afterburner (13); none (9); catalytic afterburner hx (1)

EMISSIONS DATA from ICCRV2.MDB:

pollutant, CAS	average emission rate	data points
PM	2.1 tons per year	6
PM10	0.9 tons per year	4
CO	0.4 tons per year	7
VOC	0.27 tons per year	6
SO2	0.11 tons per year	7
NOx	1.2 tons per year	6
benzene, 71-43-2	0.04 pounds per year	3
arsenic, 7440-38-2	0.004 pounds per hour	1
cadmium, 7440-43-9	0.001 pounds per hour	1
copper, 7440-50-8	0.0006 pounds per hour	1
lead, 7439-92-1	0.003 pounds per hour	1
manganese, 7439-96-5	0.0005 pounds per hour	1
mercury, 7439-97-6	0.005 pounds per hour	1
nickel, 7440-02-0	0.004 pounds per hour	1
selenium, 7782-49-2	0.00004 pounds per hour	1
zinc, 7440-66-6	0.00015 pounds per hour	1

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SUBCATEGORY 2 (of 4): **PARTS RECLAIMER UNITS**

This type of incinerator is used to reclaim metal parts for reuse in their current form. An organic coating (paint, varnish) or part (plastic, rubber) is burned off a wide variety of metal parts in these units. Metal parts fed to these primarily batch units include paint hooks/racks, electric motor armatures, transformer winding cores, and electroplating racks. Batch unit operation consists of loading the cold burnoff oven with metal parts, igniting the afterburner, if present, and main burner (usually natural gas-fired), and allowing the coating to pyrolyze into an ash-like material (often over a period of hours) which is then mechanically removed or abrasive-blasted off the metal part. Because of the wide variety of parts recycled in these units, facility size varies widely, from small electric motor repair shops to large automotive assembly plants.

CAAA Section: 129
Number of Facilities in ICCR database: 239
Number of Units in ICCR database: 299
Employees per Facility: 1 - 7406 (avg 675)
Fuel: natural gas (78)
Heat Input: 0.2 MMBtu/hr - 3.7 MMBtu/hr

AIR POLLUTION CONTROL DEVICES

air pollution control device	**number**
direct flame afterburner	73
none	36
miscellaneous control devices	4
fabric filter - high temperature	3
catalytic afterburner - heat exchanger	3
direct flame afterburner - heat exchanger	3
wet scrubber - medium efficiency	2
gravity collector - low efficiency	2
wet scrubber - low efficiency	1
gravity collector - high efficiency	1
modified furnace/burner design	1
control of %O2 in combustion air	1
venturi scrubber	1

EMISSIONS DATA from ICCRV2.MDB:

pollutant, CAS	average emission rate, range	data points
PM	0.19 tons per year, 0.001 - 4.28	30
PM10	0.008 tons per year, 0.0008 - 0.034	22
CO	0.048 tons per year, 0.0051 - 0.335	26
VOC	0.26 tons per year, 0.001 - 4.275	45
SO2	0.006 tons per year, 0.00015 - 0.042	40
NOx	0.34 tons per year, 0.001 - 4.0	47
Acrolein, 107-02-8	2.7E-09 pounds per hour	1
Toluene, 108-88-3	1.4E-04 pounds per hour	4
, 115-07-1	1.9E-03 pounds per hour	2
Formaldehyde, 50-00-0	3.0E-03 pounds per hour	5
Benzene, 71-43-2	1.9E-04 pounds per hour	5
Acetaldehyde, 75-07-0	7.3E-09 pounds per hour	1
Naphthalene, 91-20-3	1.1E-04 pounds per hour	3
, 18540-29-9	4.1E-05 pounds per hour	2
, 193-39-5	9.2E-07 pounds per hour	2
, 205-99-2	4.9E-07 pounds per hour	2
, 207-08-9	5.5E-07 pounds per hour	2
Chrysene, 218-01-9	5.8E-07 pounds per hour	2
Benzo[a]pyrene, 50-32-8	7.0E-07 pounds per hour	2
, 53-70-3	1.0E-06 pounds per hour	2
1,2-Benzanthracene, 56-55-3	6.4E-07 pounds per hour	2
Lead, 7439-92-1	3.0E-04 pounds per hour	2
Nickel, 7440-02-0	8.7E-05 pounds per hour	2
Arsenic, 7440-38-2	5.0E-04 pounds per hour	2
Beryllium, 7440-41-7	4.2E-06 pounds per hour	2
Cadmium, 7440-43-9	1.4E-03 pounds per hour	2
Hydrogen chloride, 7647-01-0	0.044 pounds per hour	2

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SUBCATEGORY 3 (of 4): **SCRAP METAL RECOVERY UNITS**

These units are subcategorized on the basis of Section 129(g)(1) which excludes material recovery units, including secondary metal recovery units, from regulation under Section 129. These units are candidates for regulation under Section 112. These units are used to recover metals such as iron and steel, copper, aluminum, lead, and precious metals for reprocessing into other parts or uses. Secondary lead and secondary aluminum have undergone or are undergoing MACT standard development elsewhere and duplicative effort should be avoided. These units are distinct from subcategory 2 units that recover metal parts for reuse or rework as that part. See Incinerator Work Group Subteam 4 presentation to the July Coordinating Committee meeting for a complete discussion of this matter. Scrap metal recovery units appear to be relatively large compared to other metals-related incinerators, with greater emissions than the other subcategories under subteam 4. Again, direct flame afterburners are the predominate APCD, but a sizable fraction of scrap metal recovery units employ caustic scrubbers for acid gas control. No HAPs data for these units are available in ICCRV2.MDB.

CAAA Section: 112
Number of Facilities in ICCR database: 93
Number of Units in ICCR database: 109
Employees per Facility: 2 - 200 (avg 61)
Fuel: natural gas (14)
Heat Input: ?? 0.5 MMBtu/hr - 50 MMBtu/hr ??

AIR POLLUTION CONTROL DEVICES

air pollution control device	**number**
direct flame afterburner	28
none	14
sodium-alkali scrubbing system	8
fabric filter - high temperature	4
fabric filter - general	4
fabric filter - low temperature	3
chemical neutralization	3
fabric filter - medium temperature	1
staged combustion	1
venturi scrubber	1
dust suppress - water spray vapor space tank	1
multiple cyclone w/o fly ash reinjection	1
miscellaneous control devices	1

EMISSIONS DATA from ICCRV2.MDB:

pollutant, CAS	**average emission rate, range**	**data points**
PM	1.8 tons per year, 0.11 - 3.7	6
PM10	1.4 tons per year, 0.07 - 2.0	4
CO	2.4 tons per year	2
VOC	2.2 tons per year, 0.045 - 4.75	6
SO2	5.7 tons per year, 0.013 - 10.6	5
NOx	10.7 tons per year, 0.045 - 19.7	5

scrap1.wpd 10/10/97 ajr

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SUBTEAM 4: METALS-, GLASS-, AND RUBBER-RELATED INCINERATION

SUBCATEGORY 4 (of 4): **EVERYTHING ELSE / UNCLASSIFIED UNITS**

The largest subcategory under subteam 4 is currently subcategory 4, which includes all rubber- and glass-related incinerators, and metals-related incinerators that could not be definitely assigned to any of the other 3 subcategories (drum reclaimers, parts reclaimers, or scrap metal recovery units). It is expected that the Information Collection Request database, available October 15, will provide additional information to allow distribution of many subcategory 4 units into the other subcategories as appropriate. Nevertheless, a need to subcategorize "everything else" units will remain. At this time, however, a detailed analysis of subcategory 4 units is not deemed to be worthwhile.

CAAA Section: 129 or 112
Number of Facilities in ICCR database: 266
Number of Units in ICCR database: 315
Rubber-related Units: 16
Glass-related Units: none?
Total Metals-related Units: 276
Likely Subcategories 1-3 Metals-related Units: 230
REALLY ODD UNITS: ~15